

What Is Claimed Is:

- 1 1. An electro-active spectacle lens comprising:
2 a first lens optic having astigmatic correction;
3 a first electro-active zone positioned in a cooperative relationship
4 with said first lens optic.
- 1 2. The electro-active lens of claim 1, wherein said first electro-active zone is
2 included in an electro-active layer.
- 1 3. The electro-active lens of claim 1, wherein said first electro-active zone is
2 included in an electro-active region.
- 1 4. The electro-active lens of claim 1, wherein said first electro-active zone is
2 included in an electro-active structure.
- 1 5. The electro-active lens of claim 1, wherein said astigmatic correction
2 includes astigmatic power correction.
- 1 6. The electro-active lens of claim 1, wherein said astigmatic correction
2 includes astigmatic axis correction.
- 1 7. The electro-active lens of claim 1, wherein said electro-active lens is adapted
2 to correct refractive error to about 20/20.
- 1 8. The electro-active lens of claim 1, wherein said electro-active lens is adapted
2 to correct refractive error to better than 20/20.
- 1 9. The electro-active lens of claim 1, wherein said electro-active lens is adapted
2 to correct refractive error to about 20/15.

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- 1 10. The electro-active lens of claim 1, wherein said electro-active lens is adapted
2 to correct refractive error to better than 20/15.
- 1 11. The electro-active lens of claim 1, wherein said electro-active lens is adapted
2 to correct refractive error to about 20/10.
- 1 12. The electro-active lens of claim 1, wherein said electro-active lens is adapted
2 to correct refractive error to better than 20/10.
- 1 13. The electro-active lens of claim 1, wherein said first electro-active zone is a
2 single interconnect structure.
- 1 14. The electro-active lens of claim 1, wherein said first electro-active zone is a
2 pixelated structure.
- 1 15. The electro-active lens of claim 1, wherein said first electro-active zone is a
2 hybrid structure.
- 1 16. The electro-active lens of claim 1, wherein said first electro-active zone is a
2 non-hybrid structure.
- 1 17. The electro-active lens of claim 1, wherein said first electro-active zone
2 encompasses a portion of a layer.
- 1 18. The electro-active lens of claim 1, wherein said first electro-active zone
2 encompasses all of a layer.
- 1 19. The electro-active lens of claim 1, wherein said first electro-active zone is
2 embedded within said first lens optic.

- 1 20. The electro-active lens of claim 1, wherein said first electro-active zone is
2 attached to said first lens optic.
- 1 21. The electro-active lens of claim 1, wherein said first electro-active zone is
2 bonded to said first lens optic.
- 1 22. The electro-active lens of claim 1, wherein said first electro-active zone is
2 attached to a coating attached to said first lens optic.
- 1 23. The electro-active lens of claim 1, wherein said first electro-active zone is
2 deposited on said first lens optic.
- 1 24. The electro-active lens of claim 1, wherein said first lens optic has a front
2 convex surface, and said first electro-active zone is attached to said front
3 convex surface.
- 1 25. The electro-active lens of claim 1, wherein said first lens optic has a concave
2 surface, and said first electro-active zone is attached to said concave surface.
- 1 26. The electro-active lens of claim 1, wherein said first lens optic has a surface,
2 said first electro-active zone is attached to said surface, and a scratch
3 resistant coating is attached to said first electro-active zone.
- 1 27. The electro-active lens of claim 1, wherein said first electro-active zone is
2 adapted to correct conventional refractive error.
- 1 28. The electro-active lens of claim 1, wherein said first electro-active zone is
2 adapted to correct non-conventional refractive error.
- 1 29. The electro-active lens of claim 1, wherein said first electro-active zone is

2 adapted to correct presbyopia.

1 30. The electro-active lens of claim 1, wherein said first electro-active zone is
2 adapted to correct near vision refractive error.

1 31. The electro-active lens of claim 1, wherein said first lens optic is a plano
2 lens.

1 32. The electro-active lens of claim 1, wherein said first lens optic is a single
2 vision corrective optic.

1 33. The electro-active lens of claim 1, wherein said first lens optic is a multifocal
2 corrective optic.

1 34. The electro-active lens of claim 1, wherein said first lens optic is a
2 progressive multifocal corrective optic.

1 35. The electro-active lens of claim 1, wherein said first lens optic provides
2 astigmatic power and axis correction.

1 36. The electro-active lens of claim 1, wherein said first electro-active zone is
2 centered with respect to said first lens optic.

1 37. The electro-active lens of claim 1, wherein said first electro-active zone is
2 decentered with respect to said first lens optic.

1 38. The electro-active lens of claim 1, wherein said first electro-active zone has
2 an optical center that is decentered with respect to an optical center of said
3 first lens optic.

1 39. The electro-active lens of claim 1, wherein said first electro-active zone has a
2 diameter of about 10 millimeters to about 40 millimeters.

1 40. The electro-active lens of claim 1, wherein said first electro-active zone has a
2 diameter of about 20 millimeters to about 35 millimeters.

1 41. The electro-active lens of claim 1, wherein said first electro-active zone has
2 an uneven thickness.

1 42. The electro-active lens of claim 1, wherein said first electro-active zone has a
2 thickness that varies to create a lens shape.

1 43. The electro-active lens of claim 1, wherein said first electro-active zone has a
2 thickness that varies to create a convergent lens shape.

1 44. The electro-active lens of claim 1, wherein said first electro-active zone has a
2 thickness that varies to create a divergent lens shape.

1 45. The electro-active lens of claim 1, wherein said first electro-active zone
2 includes a polymer gel.

1 46. The electro-active lens of claim 1, wherein said first electro-active zone
2 includes a metallic layer.

1 47. The electro-active lens of claim 1, wherein said first electro-active zone
2 includes a conductive layer.

1 48. The electro-active lens of claim 1, further comprising a second electro-active
2 zone positioned in a cooperative relationship with said first lens optic.

- 1 49. The electro-active lens of claim 1, further comprising a polymer gel second
2 electro-active zone positioned in a cooperative relationship with said first
3 lens optic.
- 1 50. The electro-active lens of claim 1, further comprising a liquid crystal second
2 electro-active zone positioned in a cooperative relationship with said first
3 lens optic.
- 1 51. The electro-active lens of claim 1, further comprising a tint effect second
2 electro-active zone positioned in a cooperative relationship with said first
3 lens optic.
- 1 52. The electro-active lens of claim 1, further comprising a sunglass effect
2 second electro-active zone positioned in a cooperative relationship with said
3 first lens optic.
- 1 53. The electro-active lens of claim 1, further comprising a photochromatic
2 second electro-active zone positioned in a cooperative relationship with said
3 first lens optic.
- 1 54. The electro-active lens of claim 1, further comprising a anti-reflective second
2 electro-active zone positioned in a cooperative relationship with said first
3 lens optic.
- 1 55. The electro-active lens of claim 1, further comprising a protective layer
2 positioned in a cooperative relationship with said first lens optic.
- 1 56. The electro-active lens of claim 1, further comprising a second electro-active
2 zone positioned in a cooperative relationship with said first electro-active
3 zone.

- 1 57. The electro-active lens of claim 1, further comprising a second electro-active
2 zone positioned in a cooperative relationship with said first electro-active
3 zone and separated from said first electro-active zone by an insulator.
- 1 58. The electro-active lens of claim 1, further comprising a second electro-active
2 zone positioned concentrically with said first electro-active zone.
- 1 59. The electro-active lens of claim 1, further comprising a second electro-active
2 zone positioned proximally to said first electro-active zone with respect to a
3 wearer's eye.
- 1 60. The electro-active lens of claim 1, further comprising a second electro-active
2 zone positioned distally to said first electro-active zone with respect to a
3 wearer's line of eye.
- 1 61. The electro-active lens of claim 1, further comprising a second electro-active
2 zone positioned adjacent to said first electro-active zone.
- 1 62. The electro-active lens of claim 1, further comprising a second electro-active
2 zone positioned adjacent to said first electro-active zone with respect to a
3 wearer's line of eye.
- 1 63. The electro-active lens of claim 1, further comprising a second lens optic
2 positioned in a cooperative relationship with said first lens optic.
- 1 64. The electro-active lens of claim 1, further comprising a second lens optic
2 positioned in a cooperative relationship with said first electro-active zone.
- 1 65. The electro-active lens of claim 1, further comprising a second lens optic

2 positioned in a cooperative relationship with said first lens optic, said electro-
3 active zone positioned between said second lens optic and said first lens
4 optic.

1 66. The electro-active lens of claim 1, further comprising a Fresnell layer
2 positioned in a cooperative relationship with said first lens optic.

1 67. The electro-active lens of claim 1, further comprising an etched Fresnell
2 layer positioned in a cooperative relationship with said first lens optic.

1 68. The electro-active lens of claim 1, further comprising a diffractive layer
2 positioned in a cooperative relationship with said first lens optic.

1 69. The electro-active lens of claim 1, further comprising an etched diffractive
2 layer positioned in a cooperative relationship with said first lens optic.

1 70. The electro-active lens of claim 1, further comprising a diffractive zone
2 etched into said first lens optic.

1 71. The electro-active lens of claim 1, further comprising a prismatic layer
2 positioned in a cooperative relationship with said first lens optic.

1 72. The electro-active lens of claim 1, further comprising a prismatic zone within
2 said first lens optic.

1 73. The electro-active lens of claim 1, further comprising a diffractive second
2 lens optic positioned in a cooperative relationship with said first lens optic.

1 74. The electro-active lens of claim 1, further comprising an energy source
2 connected to said electro-active zone.

1 75. The electro-active lens of claim 1, further comprising a controller connected
2 to said electro-active zone.

1 76. The electro-active lens of claim 1, further comprising a removable controller
2 connected to said electro-active zone.

1 77. The electro-active lens of claim 1, further comprising a controller adapted to
2 be coupled to said electro-active zone.

1 78. The electro-active lens of claim 1, further comprising a programmable
2 controller connected to said electro-active zone.

1 79. The electro-active lens of claim 1, further comprising a programmable
2 controller adapted to be coupled to said electro-active zone.

1 80. The electro-active lens of claim 1, further comprising a controller connected
2 to said electro-active zone, said controller including a processor.

1 81. The electro-active lens of claim 1, further comprising a controller connected
2 to said electro-active zone, said controller including a memory.

1 82. The electro-active lens of claim 1, further comprising a controller connected
2 to said electro-active zone, said controller including an input/output
3 mechanism.

1 83. The electro-active lens of claim 1, further comprising an eye-care-
2 professional-operable controller connected to said electro-active zone.

1 84. The electro-active lens of claim 1, further comprising an eye-care-

- 2 professional-adjustable controller connected to said electro-active zone.
- 1 85. The electro-active lens of claim 1, further comprising a wearer-operable
2 controller connected to said electro-active zone.
- 1 86. The electro-active lens of claim 1, further comprising a wearer-adjustable
2 controller connected to said electro-active zone.
- 1 87. The electro-active lens of claim 1, further comprising a controller connected
2 to said electro-active zone, said controller adapted to change a voltage
3 applied to said electro-active zone.
- 1 88. The electro-active lens of claim 1, further comprising a controller connected
2 to said electro-active zone, said controller adapted to change a voltage
3 applied to said electro-active zone in a variable manner allowing for the
4 focus of vision from far to near and from near to far.
- 1 89. The electro-active lens of claim 1, further comprising a controller connected
2 to said electro-active zone, said controller adjustable to change a voltage
3 applied to said electro-active zone in a variable manner allowing for the
4 focus of vision from far to near and from near to far
- 1 90. The electro-active lens of claim 1, wherein said first electro-active zone
2 includes an plurality of diffractive zones.
- 1 91. The electro-active lens of claim 1, wherein said first electro-active zone
2 includes an array of electrically-driven pixels.
- 1 92. The electro-active lens of claim 1, wherein said first electro-active zone
2 includes a grid array of electrically-driven pixels.

- 1 93. The electro-active lens of claim 1, wherein said first electro-active zone
2 includes an array of electrically-driven pixels, each pixel having an
3 electrically-alterable index of refraction.
- 1 94. The electro-active lens of claim 1, wherein said first electro-active zone is
2 configured in a circular shape.
- 1 95. The electro-active lens of claim 1, wherein said first electro-active zone is
2 configured in an ellipsoidal shape.
- 1 96. The electro-active lens of claim 1, wherein said first electro-active zone is
2 configured in an annular shape.
- 1 97. The electro-active lens of claim 1, wherein said electro-active lens is
2 mounted in a spectacle frame.
- 1 98. The electro-active lens of claim 1, wherein said electro-active lens is
2 mounted in a phoropter.
- 1 99. The electro-active lens of claim 1, further comprising a controller connected
2 to said electro-active zone, said controller connected to a line-of-sight
3 tracker.
- 1 100. The electro-active lens of claim 1, further comprising a controller connected
2 to said electro-active zone and to a line-of-sight tracker, wherein said
3 controller is adapted to activate said electro-active zone in response to a line-
4 of-sight of a wearer.
- 1 101. The electro-active lens of claim 1, further comprising a controller connected

2 to said electro-active zone and to a line-of-sight tracker, wherein said
3 controller is adapted to activate an area of said electro-active zone, said area
4 corresponding to a line-of-sight of a wearer of the electro-active lens.

1 102. The electro-active lens of claim 1, wherein said first electro-active zone
2 includes an array of electrically-driven pixels adapted to fail-safe if
3 electricity is unavailable to said pixels.

1 103. The electro-active lens of claim 1, wherein said first electro-active zone
2 includes a diffractive zone adapted to fail-safe if electricity is unavailable to
3 said diffractive zone.

1 104. The electro-active lens of claim 1, wherein said first electro-active zone
2 includes a diffractive zone adapted to fail-safe if electricity is unviaible to
3 said diffractive zone.

1 105. The electro-active lens of claim 1, further comprising a controller connected
to said electro-active zone, said controller connected to a rangefinder.

1 106. An electro-active spectacle lens comprising:
2 a first lens optic having astigmatic correction;
3 a plurality of electro-active zones positioned in a cooperative
4 relationship with said first lens optic.

1 107. The electro-active lens of claim 106, wherein each of said electro-active
2 zones is separated from an adjacent electro-active zone by an insulator.

1 108. The electro-active lens of claim 106, wherein each of said electro-active
2 zones includes a grid of pixels.

- 1 109. The electro-active lens of claim 106, further comprising a controller
2 connected to said plurality of zones, said controller adapted to change a
3 voltage applied to each of said plurality of zones.
- 1 110. The electro-active lens of claim 106, further comprising a controller
2 connected to said plurality of zones, said controller adapted to change a
3 voltage applied to less than all of said plurality of zones.
- 1 111. The electro-active lens of claim 106, further comprising a controller
2 connected to said plurality of zones, said controller adapted to energize less
3 than all of said plurality of zones.
- 1 112. The electro-active lens of claim 106, further comprising a controller
2 connected to said plurality of zones, said controller adapted to energize each
3 of said plurality of zones.
- 1 113. An electro-active lens comprising:
2 a first lens optic having a first index of refraction;
3 a first electro-active zone positioned in a cooperative relationship
4 with said first lens optic, said first electro-active zone having a second index
5 of refraction within about 0.00 refractive units to about 0.05 refractive units
6 of said first index of refraction.
- 1 114. The electro-active lens of claim 113, wherein said first electro-active zone is
2 included in an electro-active layer.
- 1 115. The electro-active lens of claim 113, wherein said first electro-active zone is
2 included in an electro-active region.
- 1 116. The electro-active lens of claim 113, wherein said first electro-active zone is

2 included in an electro-active structure.

1 117. An electro-active lens comprising:

2 a first lens optic;

3 a first electro-active zone positioned in a cooperative relationship
4 with said first lens optic, said first electro-active zone having a first index of
5 refraction;

6 a second electro-active zone positioned in a cooperative relationship
7 with said first lens optic, said second electro-active zone having a second
8 index of refraction within about 0.00 refractive units to about 0.05 refractive
9 units of said first index of refraction.

1 118. The electro-active lens of claim 117, wherein said first electro-active zone is
2 included in an electro-active layer.

1 119. The electro-active lens of claim 117, wherein said first electro-active zone is
2 included in an electro-active region.

1 120. The electro-active lens of claim 117, wherein said first electro-active zone is
2 included in an electro-active structure.

1 121. The electro-active lens of claim 117, wherein said second index of refraction
2 corresponds to an electrically inactivated state.

1 122. The electro-active lens of claim 117, wherein said second index of refraction
2 corresponds to an electrically activated state.

1 123. The electro-active lens of claim 117, wherein said second index of refraction
2 is within about 0.00 refractive units to about 0.03 refractive units of said first
3 index of refraction.

1 124. The electro-active lens of claim 117, wherein said second index of refraction
2 is within about 0.02 refractive units to about 0.04 refractive units of said first
3 index of refraction.

1 125. The electro-active lens of claim 117, wherein said second index of refraction
2 is within about 0.01 refractive units to about 0.03 refractive units of said first
3 index of refraction.

1 126. The electro-active lens of claim 117, wherein said second index of refraction
2 is within about 0.02 refractive units to about 0.03 refractive units of said first
3 index of refraction.

1 127. An electro-active lens having a plurality of pixels, each pixel from said
2 plurality of pixels having an adjustable index of refraction, adjustments to
3 said index of refraction limited to 0.05 refractive units with respect to a
4 neighboring pixel's index of refraction.

1 128. An electro-active lens comprising:
2 a lens optic having a distance prescription correction; and
3 an electro-active zone positioned in a cooperative relationship with
4 said lens optic.

1 129. An electro-active lens comprising:
2 a first lens optic;
3 a first electro-active zone positioned in a cooperative relationship
4 with said first lens optic;
5 a range finder positioned in a cooperative relationship with said
6 electro-active lens.

- 1 130. The electro-active lens of claim 129, wherein at least a part of said range-
2 finder is located in or on said electro-active lens.
- 1 131. The electro-active lens of claim 129, wherein at least a part of said range-
2 finder is located in said first lens optic.
- 1 132. The electro-active lens of claim 129, wherein at least a part of said range-
2 finder is located on said first lens optic.
- 1 133. The electro-active lens of claim 129, wherein at least a part of said range-
2 finder is located in said first electro-active zone.
- 1 134. The electro-active lens of claim 129; wherein at least a part of said range-
2 finder is located on said first electro-active zone.
- 1 135. The electro-active lens of claim 129, wherein at least a part of said range-
2 finder is located on a frame attached to said first lens optic.
- 1 136. The electro-active lens of claim 129, wherein at least a part of said range-
2 finder is located in a frame attached to said first lens optic.
- 1 137. The electro-active lens of claim 129, wherein said range-finder includes a
2 light source.
- 1 138. The electro-active lens of claim 129, wherein said range-finder includes a
2 substantially transparent light source.
- 1 139. The electro-active lens of claim 129, wherein said range-finder includes an
2 organic light-emitting diode light source.

- 1 140. The electro-active lens of claim 129, wherein said range-finder includes an
2 inorganic light-emitting diode light source.
- 1 141. The electro-active lens of claim 129, wherein said range-finder includes a
2 laser light source.
- 1 142. The electro-active lens of claim 129, wherein said range-finder includes a
2 radio frequency transmitter.
- 1 143. The electro-active lens of claim 129, wherein said range-finder is coupled to
2 a controller that is coupled to said first electro-active zone.
- 1 144. The electro-active lens of claim 129, wherein said range-finder includes a
2 sensor.
- 1 145. The electro-active lens of claim 129, wherein said range-finder includes a
2 sensor adapted to receive a reflected signal originated by said range-finder.
- 1 146. An electro-active lens having an electro-actively adjustable focus and a range
2 finder.
- 1 147. An electro-active lens comprising:
2 a first lens optic; and
3 a first electro-active zone including an electro-active polymer gel,
4 said first zone positioned in a cooperative relationship with said first lens
5 optic.
- 1 148. The electro-active lens of claim 147, wherein said polymer gel contains an
2 electro-active constituent comprising at least 30% by weight of said polymer
3 gel.

- 1 149. The electro-active lens of claim 147, wherein said polymer gel has a
2 refractive index of about 1.2 units to about 1.9 units.
- 1 150. The electro-active lens of claim 147, wherein said polymer gel has a
2 refractive index of about 1.45 units to about 1.75 units.
- 1 151. The electro-active lens of claim 147, wherein said polymer gel has a
2 refractive index that changes with respect to voltage by at least 0.02
3 refractive units per volt.
- 1 152. The electro-active lens of claim 147, wherein said polymer gel has a
2 refractive index that changes with respect to voltage by at least 0.02
3 refractive units per volt for an applied voltage of about 2.5 volts to about 25
4 volts.
- 1 153. The electro-active lens of claim 147, wherein said polymer gel is an electro-
2 optic polymer.
- 1 154. The electro-active lens of claim 147, wherein said polymer gel is a polymer
2 liquid crystal.
- 1 155. The electro-active lens of claim 147, wherein said polymer gel is a polymer
2 dispersed liquid crystal.
- 1 156. The electro-active lens of claim 147, wherein said polymer gel is a polymer
2 stabilized liquid crystal.
- 1 157. The electro-active lens of claim 147, wherein said polymer gel is a self-
2 assembled nonlinear supramolecular structure.

- 1 158. The electro-active lens of claim 147, wherein said polymer gel contains a
2 liquid crystal polymer.
- 1 159. The electro-active lens of claim 147, wherein said polymer gel contains a
2 thermoset matrix material.
- 1 160. The electro-active lens of claim 147, wherein said polymer gel contains a
2 cross-linked acrylate.
- 1 161. The electro-active lens of claim 147, wherein said polymer gel contains a
2 methacrylate.
- 1 162. The electro-active lens of claim 147, wherein said polymer gel contains a
2 polyurethane.
- 1 163. The electro-active lens of claim 147, wherein said polymer gel contains a
2 vinyl polymer cross-linked with a difunctional acrylate.
- 1 164. The electro-active lens of claim 147, wherein said polymer gel contains a
2 vinyl polymer cross-linked with a multifunctional acrylate.
- 1 165. The electro-active lens of claim 147, wherein said polymer gel contains a
2 vinyl polymer cross-linked with a difunctional methacrylate.
- 1 166. The electro-active lens of claim 147, wherein said polymer gel contains a
2 vinyl polymer cross-linked with a multifunctional methacrylate.
- 1 167. The electro-active lens of claim 147, wherein said polymer gel contains a
2 vinyl polymer cross-linked with a difunctional vinyl derivative.

- 1 168. The electro-active lens of claim 147, wherein said polymer gel contains a
2 vinyl polymer cross-linked with a multifunctional vinyl derivative.
- 1 169. The electro-active lens of claim 147, wherein said polymer gel is injection-
2 molded onto said first lens optic.
- 1 170. The electro-active lens of claim 147, wherein said polymer gel is cast onto
2 said first lens optic.
- 1 171. The electro-active lens of claim 147, wherein said polymer gel is bonded
2 onto said first lens optic.
- 1 172. The electro-active lens of claim 147, further comprising an alignment layer
2 attached to said polymer gel.
- 1 173. The electro-active lens of claim 147, further comprising a metallic layer
2 attached to said polymer gel.
- 1 174. The electro-active lens of claim 147, further comprising a transparent
2 metallic layer attached to said polymer gel.
- 1 175. The electro-active lens of claim 147, further comprising a metallic layer
2 attached to said polymer gel, said metallic layer transparent to a wearer of
3 said electro-active lens.
- 1 176. The electro-active lens of claim 147, further comprising a metallic layer
2 attached to said polymer gel, said metallic layer having a thickness of about
3 10^{-4} microns to about 10^{-2} microns.

- 1 177. The electro-active lens of claim 147, further comprising a metallic layer
2 attached to said polymer gel, said metallic layer having a thickness of about
3 10^{-3} microns.
- 1 178. The electro-active lens of claim 147, further comprising a gridlike metallic
2 layer attached to said polymer gel.
- 1 179. The electro-active lens of claim 147, further comprising a metallic layer
2 attached to said polymer gel, said metallic layer having an array of
3 electrodes.
- 1 180. The electro-active lens of claim 147, further comprising a metallic layer
2 adjacent to said polymer gel.
- 1 181. The electro-active lens of claim 147, further comprising a metallic layer
2 deposited onto a side of said polymer gel.
- 1 182. The electro-active lens of claim 147, further comprising a vacuum deposited
2 metallic layer adjacent to said polymer gel.
- 1 183. The electro-active lens of claim 147, further comprising a sputtered metallic
2 layer adjacent to said polymer gel.
- 1 184. The electro-active lens of claim 147, further comprising a conductive layer.
- 1 185. The electro-active lens of claim 147, further comprising a conductive layer
2 having a thickness of about 0.05 microns to about 0.2 microns.
- 1 186. The electro-active lens of claim 147, further comprising a conductive layer
2 having a thickness of about 0.1 microns.

- 1 187. The electro-active lens of claim 147, further comprising a conductive layer
2 attached to a metallic layer.
- 1 188. The electro-active lens of claim 147, further comprising a transparent
2 conductive layer.
- 1 189. The electro-active lens of claim 147, further comprising a transparent
2 conductive layer attached to a metallic layer.
- 1 190. The electro-active lens of claim 147, further comprising a conductive layer
2 attached to a metallic layer, said conductive layer transparent to a wearer of
3 said electro-active lens.
- 1 191. The electro-active lens of claim 147, further comprising a conductive layer
2 attached to a metallic layer, said conductive layer having an array of
3 electrical contacts.
- 1 192. The electro-active lens of claim 147, further comprising a conductive layer
2 deposited by vacuum deposition onto a metallic layer.
- 1 193. The electro-active lens of claim 147, further comprising a conductive layer
2 deposited by sputtering onto a metallic layer.
- 1 194. The electro-active lens of claim 147, further comprising an insulating layer
2 attached to a conductive layer.
- 1 195. The electro-active lens of claim 147, further comprising a silicone oxide
2 insulating layer attached to a conductive layer.

- 1 196. The electro-active lens of claim 147, further comprising a transparent
2 insulating layer.
- 1 197. The electro-active lens of claim 147, further comprising a transparent
2 insulating layer attached to a conductive layer.
- 1 198. The electro-active lens of claim 147, further comprising an insulating layer
2 attached to a conductive layer, said insulating layer transparent to a wearer of
3 said electro-active lens.
- 1 199. The electro-active lens of claim 147, wherein said polymer gel is housed in a
2 sealed encapsulating envelope.
- 1 200. The electro-active lens of claim 147, wherein said polymer gel has a varying
2 thickness.
- 1 201. The electro-active lens of claim 147, wherein said polymer gel has a
2 thickness between about 3 microns and about 1 millimeter.
- 1 202. The electro-active lens of claim 147, wherein said polymer gel has a
2 thickness between about 3 microns and about 100 microns.
- 1 203. The electro-active lens of claim 147, wherein said polymer gel has a
2 thickness between about 4 microns and about 20 microns.
- 1 204. The electro-active lens of claim 147, wherein said polymer gel has a modulus
of between about 100 pounds per inch and about 800 pounds per inch.
- 1 205. The electro-active lens of claim 147, wherein said polymer gel has a modulus
of between about 200 pounds per inch and about 600 pounds per inch.

- 1 206. An electro-active lens comprising:
2 a first lens optic;
3 a first layer positioned in a cooperative relationships with said first
4 lens optic and having a first electro-active region that encompasses a portion
5 of said first layer.
- 1 207. The electro-active lens of claim 206, wherein said first electro-active region
2 is activated.
- 1 208. The electro-active lens of claim 206, wherein said portion is variable.
- 1 209. The electro-active lens of claim 206, wherein said portion is fixed.
- 1 210. The electro-active lens of claim 206, wherein said portion is variable in size.
- 1 211. The electro-active lens of claim 206, wherein said portion is variable in
2 location.
- 1 212. The electro-active lens of claim 206, wherein said portion is time variable.
- 1 213. The electro-active lens of claim 206, wherein said first electro-active region
2 has a variable corrective power.
- 1 214. The electro-active lens of claim 206, wherein said first electro-active region
2 has an adjustable corrective power.
- 1 215. An electro-active lens comprising:
2 a first lens optic providing multi-focal optical refraction;
3 a first electro-active zone positioned in a cooperative relationship

4 with said first lens optic.

1 216. An electro-active lens comprising:
2 a first lens optic; and
3 a near vision electro-active zone located intermittently above a 180
4 meridian of said first lens optic.

1 217. An optical lens comprising at least two electro-active zones separated by an
2 insulating zone, each electro-active zone adapted to be independently
3 activated.

1 218. An optical lens comprising at least two electro-active layers separated by an
2 insulating layer, each electro-active layer adapted to be independently
3 activated.

1 219. An optical lens comprising at least two electro-active regions separated by an
2 insulating region, each electro-active region adapted to be independently
3 activated.

1 220. An optical lens comprising a plurality of programmably controlled electro-
2 active zones.

1 221. An optical lens comprising a plurality of programmably controlled electro-
2 active regions.

1 222. An optical lens comprising a plurality of programmably controlled electro-
2 active layers.

1 223. An electro-active lens comprising:
2 a first lens optic having a presbyopic correction region;

3 a first electro-active zone positioned in a cooperative relationship
4 with said first lens optic and adapted to reduce unwanted astigmatism created
5 by said presbyopic correction region.

1 224. The electro-active lens of claim 223, adapted to subtract unwanted
2 astigmatism created by said presbyopic correction region.

1 225. The electro-active lens of claim 223, adapted to offset unwanted astigmatism
2 created by said presbyopic correction region.

1 226. The electro-active lens of claim 223, adapted to neutralize unwanted
2 astigmatism created by said presbyopic correction region.

1 227. The electro-active lens of claim 223, adapted to subtract, offset, or neutralize
2 unwanted astigmatism created by said presbyopic correction region.

1 228. An electro-active lens comprising:
2 a first lens optic;
3 a first electro-active zone positioned in a cooperative relationship
4 with said first lens optic and adapted to correct at least one aberration.

1 229. The electro-active lens of claim 228, wherein said aberration is an ocular
2 aberration.

1 230. The electro-active lens of claim 228, wherein said aberration is an optical
2 aberration.

- 1 231. An electro-active lens comprising:
2 a first lens optic;
3 a first electro-active zone positioned in a cooperative relationship
4 with said first lens optic to correct a wearer's vision to better than 20/20.
- 1 232. The electro-active lens of claim 231, wherein said first electro-active zone
2 cooperates with said first lens optic to correct a wearer's vision to about
3 20/15.
- 1 233. The electro-active lens of claim 231, wherein said first electro-active zone
2 cooperates with said first lens optic to correct a wearer's vision to better than
3 20/15.
- 1 234. The electro-active lens of claim 231, wherein said first electro-active zone
2 cooperates with said first lens optic to correct a wearer's vision to about
3 20/10.
- 1 235. The electro-active lens of claim 231, wherein said first electro-active zone
2 cooperates with said first lens optic to correct a wearer's vision to better than
3 20/10.
- 1 236. An electro-active lens comprising:
2 a first lens optic;
3 a plurality of electro-active zones positioned in a cooperative
4 relationship with said first lens optic;
5 a tracker adapted to alter a first electro-active zone from said plurality
6 of electro-active zones.

- 1 237. The electro-active lens of claim 236, wherein said tracker measures a line-of-
2 sight.
- 1 238. The electro-active lens of claim 236, wherein said tracker reacts to changes
2 in a line-of-sight.
- 1 239. The electro-active lens of claim 236, wherein said tracker measures inter-
2 pupillary distance.
- 1 240. The electro-active lens of claim 236, wherein said tracker reacts to changes
2 in inter-pupillary distance.
- 1 241. The electro-active lens of claim 236, wherein said tracker is adapted to alter a
2 second electro-active zone from said plurality of electro-active zones.
- 1 242. The electro-active lens of claim 236, wherein said tracker is adapted to alter a
2 second electro-active zone from said plurality of electro-active zones in
3 reaction to a wearer's line-of-sight.
- 1 243. The electro-active lens of claim 236, wherein said tracker includes two or
2 more light emitting diodes.
- 1 244. The electro-active lens of claim 236, wherein said tracker includes two or
2 more refraction sensors.
- 1 245. The electro-active lens of claim 236, wherein said tracker includes two or
2 more refraction sensors located on a back side of a frame attached to said
3 first lens optic.

- 1 246. The electro-active lens of claim 236, wherein said tracker includes two or
2 more light emitting diodes and two or more refraction sensors.
- 1 247. An electro-active lens comprising:
2 a semi-finished lens blank; and
3 an electro-active zone positioned in a cooperative relationship with
4 said semi-finished lens blank.